



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/705,876	11/13/2003	Torsten Olofsson	027651-144	6290
21839	7590	06/30/2005	EXAMINER	
BUCHANAN INGERSOLL PC (INCLUDING BURNS, DOANE, SWECKER & MATHIS) POST OFFICE BOX 1404 ALEXANDRIA, VA 22313-1404			HON, SOW FUN	
			ART UNIT	PAPER NUMBER
			1772	

DATE MAILED: 06/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/705,876

Applicant(s)

OLOFSSON ET AL.

Examiner

Sow-Fun Hon

Art Unit

1772

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-39 is/are pending in the application.
- 4a) Of the above claim(s) 20-28 and 37-39 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-19, 29-36 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>7/23/04</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-19, 29-36, drawn to an article, classified in class 428, subclass 36.91.
 - II. Claims 20-28, 37-39, drawn to a process, classified in class 156, subclass 244.27.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions II and I are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case, the laminate can be made by advancing a first web comprising a first polymer carrier coated with a first SiOx gas barrier layer to a first extrusion station, coextruding an intermediate polymer layer and a second polymer carrier layer onto the first web, and then coating the second polymer carrier with a second SiOx gas barrier layer; instead of advancing the first web comprising the first polymer carrier layer coated with the first SiOx gas barrier layer, and the second web comprising the second polymer carrier layer coated with the second SiOx gas barrier layer, towards each other and towards a first extrusion station, laminating the first and second webs to each other by means of extruding an intermediate polymer layer between the first and second webs and pressing them together.

Art Unit: 1772

3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

4. During a telephone conversation with Jeff Killian on December 2nd, 2004 a provisional election was made with traverse to prosecute the invention of Group I, claims 1-19, 29-36. Affirmation of this election must be made by applicant in replying to this Office action. Claims 20-28, 37-39 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Double Patenting

6. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Art Unit: 1772

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

7. Claims 1-19, 29-36 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-3, 11-29, 33, 42, 46-51 of copending Application No. 11/123,122. Although the conflicting claims are not identical, they are not patentably distinct from each other because examined independent claim 1 recites a gas barrier packaging laminate comprising outside layers of heat-sealable olefin polymer, a first gas barrier layer of SiOx coated onto a first polymer carrier layer, a second gas barrier layer of SiOx coated onto a second polymer carrier layer, and an intermediate polymer layer laminated between the first and the second gas barrier coated layers, wherein the stiffness of each of the first and second polymer carrier layers interacts with the thickness of the intermediate polymer layer in a structural sandwich construction, as also recited by potentially conflicting independent claim 1. The transparent gas barrier packaging is recited by potentially conflicting dependent claim 28. The higher thickness of the intermediate layer relative to each of the first and second gas barrier coated carrier layers, is recited by potentially conflicting dependent claim 23. The higher stiffness of the intermediate layer relative to each of the first and second gas barrier coated carrier layers, is provided by the polymers which form each layer. Examined dependent claim 6 recites high density polyethylene or polypropylene for the intermediate layer, recited by potentially conflicting dependent claim 11, and examined dependent claim 7 recites oriented polyester or polyamide for the first and second polymer carrier layers, recited by potentially conflicting dependent

Art Unit: 1772

claim 16. When the limitations of potentially conflicting dependent claims 11, 16, 23, 28 are both placed into potentially conflicting claim 1, the positive limitations in examined claim 1 are met.

8. This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 112

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

10. Claims 1-19, 29-36 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicant discloses in the specification, that the polymer of the intermediate layer is a polyolefin with a higher stiffness relative to low density polyethylene (page 6, [0019]), but fails to state that it is also stiffer than the polymers of the polymer carrier layer which are not formed from low density polyethylene. Therefore the recitation by independent claim 1, of "the intermediate polymer layer having a higher stiffness relative to each of the first and second gas barrier coated carrier layers" should be amended to "the intermediate polymer layer having a higher thickness relative to each of the first and second gas barrier coated carrier layers, and a higher stiffness relative to low density polyethylene". Alternately, with similar material stiffnesses, a thicker layer is stiffer, in which case, claim 1 should be amended to recite "the intermediate polymer layer having a higher bending stiffness

Art Unit: 1772

and a higher thickness relative to each of the first and second gas barrier coated carrier layers". Clarification is requested.

Furthermore, the x in SiO_x is not defined. Clarification is requested.

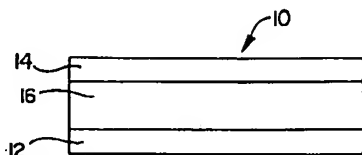
Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 1-8, 10-17, 19, 29-30, 32-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Keiser (US 6,521,312) in view of Löfgren et al. (EP 0 385 054).

Regarding claims 1, 6, 8, 17, 19, Keiser teaches a transparent (essentially clear) (column 2, lines 5-10) packaging laminate comprising a first polymer carrier layer and a second polymer carrier layer, an intermediate polymer layer laminated between the first and second polymer carrier layers, the intermediate polymer layer having a higher thickness relative to each of the first and second polymer carrier layers, wherein a stiffness of each of the first and second polymer carrier layers interacts with the stiffness and higher thickness of the intermediate polymer layer by an I-beam or sandwich (symmetrical laminate) effect in order to provide the bending stiffness (column 6, lines 30-45). Fig 1B of Keiser below shows polymer carrier layers 12, 14, and thicker intermediate layer 16.



Keiser teaches that the stiffness of the multilayer structure 10 exceeds the stiffness of each of the component layers, which is synergistic (column 6, lines 18-28). Keiser provides examples of the intermediate (inner) layer which can be LDPE, high density polypropylene (HDPE) and polypropylene (PP)(column 12, lines 1-20), whereby the high density polyethylene and polypropylene, as an intermediate layer with higher material stiffness (modulus), provide much higher laminate stiffness than LDPE.

Keiser teaches that increasing the thickness of the layer increases its layer stiffness (column 6, lines 50-55). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have increased the thickness of the HDPE or PP intermediate layer 16 of Keiser, until the intermediate layer stiffness is higher than the layer stiffness of the first and second polymer carrier layers 12, 14, in order to obtain superior laminate bending stiffness.

Keiser fails to teach that polymer carrier layers 12, 14 are SiOx gas barrier coated, that the SiOx gas barrier layers of the first and second gas barrier coated carrier layers are positioned in the laminate such that they are facing towards each other, or that the intermediate polymer layer is laminated to the layers of SiOx by means of a binder layer.

Löfgren teaches packaging laminates which are provided with a gas barrier of SiO₂ which is a species of SiOx coated onto a first polymer carrier layer and a second polymer carrier layer (column 3, lines 29-34), wherein the SiOx gas barrier layers of the

Art Unit: 1772

first and second gas barrier coated carrier layers are positioned in the laminate such that they are facing towards each other (abstract). The intermediate polymer layer is laminated to the layers of SiO_x by means of a binder layer (bonding agent) (column 5, lines 42-47). Löfgren teaches that the SiO_2 layers possess extraordinarily good gas and aroma barrier properties, are inert to the contents of the finished package, and sufficiently flexible for conversion of the laminate into packaging containers (column 2, lines 28-44).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have coated the polymer carrier layers of Keiser with SiO_2 , with the accompanying positioning of the SiO_2 layers in the laminate, as taught by Löfgren, in order to obtain the desired gas and aroma barrier properties, along with the desired inertness to the contents of the finished package, while retaining the flexibility of the laminate for conversion into packaging containers.

The limitation of "having a bending stiffness for packaging of liquid foods and drinks by a high speed, continuous process" is a recitation of the intended use of the claimed invention, which must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 370 F.2d 576, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 312 F.2d 937, 939, 136 USPQ 458, 459 (CCPA 1963). In the instant case, the laminate of Keiser in view of Löfgren has the

Art Unit: 1772

recited layers, and therefore is expected to have the bending stiffness needed for packaging of liquid foods and drinks by a high speed, continuous process.

Keiser fails to teach outside layers of heat-sealable olefin polymer.

Löfgren teaches that outside layers of heat-sealable olefin polymer (column 55-60) allows the formation of liquid-tight mechanically strong sealing joints (column 4, lines 1-10). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have provided outside layers of heat-sealable olefin polymer to the laminate of Keiser in view of Löfgren, in order to form a packaging container with the desired liquid-tight mechanically strong sealing joints, as taught by Löfgren.

Regarding claims 2, 29, Keiser provides an example where the thickness of the intermediate polymer layer constitutes 54 % ($2.16/4$) (column 12, line 16), which is within the claimed range of from 30 to 55 % of the total thickness of the packaging laminate (claim 2). Therefore, because Keiser teaches that the thickness of the intermediate layer can vary (column 6, lines 5-10) and that stiffness is also a function of thickness (column 5, lines 9-12), it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have varied the thickness of the intermediate layer so that it is within the claimed range of from 35 to 50 % of the total thickness of the laminate, in order to obtain the desired bending stiffness.

Regarding claims 3, 30, Keiser provides an example where the thickness of one of the first polymer carrier and the second polymer carrier constitutes 23 % ($\{[4 - 2.16]/[4 \times 2]\}$) (column 12, line 16). Therefore, because Keiser teaches that the

Art Unit: 1772

thickness of the intermediate layer can vary (column 6, lines 5-10), it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have varied the thickness of the intermediate layer so that the thickness of one of the first polymer carrier and the second polymer carrier varies from 23 % to within the claimed range of from 5 to 20 % of the total thickness of the packaging laminate (claim 3), and from 5 to 15 % of the total thickness of the packaging laminate (claim 30).

Regarding claims 4-5, 7, Keiser teaches that first and second carrier (outer film) layers are films of biaxially oriented polyethylene terephthalate (column 4, lines 55-60).

Regarding claims 10-11, 32-33, Keiser teaches that the thickness of each of the first and second carrier (film) layers is from about 6 to about 75 microns (column 4, lines 65-70), which overlaps the claimed range of from 7 to 30 microns (claim 10), from 8 to 20 microns (claim 32) and from 8 to 15 microns (claim 33). Keiser teaches that the first polymer carrier layer and the second polymer carrier layer can have the same thickness (column 5, lines 1-5) (claim 11).

Regarding claims 12, 34-35, Keiser teaches that thickness of the intermediate polymer layer is from about 25 to about 125 microns (column 6, lines 5-10) which overlaps the claimed range of from 40 to 80 microns (claim 12), from 40 to 60 microns (claim 34), and from 40 to 55 microns (claim 35).

Regarding claims 13-16, 36, Keiser teaches that the thickness of the intermediate polymer layer can range from about 50 to about 100 microns (column 3, lines 15-20), which overlaps the claimed range of from 40 to 60 microns (claim 14), from 40 to 50 microns (claim 15), and from 50 to 60 microns (claim 16); and that the

Art Unit: 1772

thickness of the first and second polymer carrier (outer) layers can each range from about 6 to about 75 microns (column 3, lines 1-5), which overlaps the claimed range of from 8 to 15 microns (claim 14), from 12 to 15 microns (claim 15), and from 8 to 12 microns (claim 16), which also means that the total thickness of the packaging laminate can range from 62 to about 250 microns, which overlaps the claimed range of from 100 to 180 microns (claim 13), and from 110 to 140 microns (claims 14, 36).

Regarding claim 19, Keiser teaches that the laminate can be used as a packaging laminate (column 6, lines 34-44), but fails to teach that a packaging container is manufactured from a packaging material comprising the laminate.

Löfgren teaches that the SiO_2 layers possess extraordinarily good gas and aroma barrier properties, are inert to the contents of the finished package, and sufficiently flexible for conversion of the laminate into packaging containers (column 2, lines 28-44).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have manufactured a packaging container from a packaging material containing the packaging laminate of Keiser in view of Löfgren, in order to obtain the desired finished package.

13. Claims 9, 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Keiser in view of Löfgren as applied to claims 1-8, 10-17, 19, 29-30, 32-36 above, and further in view of Fayet et al. (WO 99/19229).

Keiser in view of Löfgren teaches a gas barrier packaging laminate comprising outside layers of heat-sealable olefin polymer, a first gas barrier coated carrier layer including a first gas barrier layer of SiO_x coated onto a first polymer carrier layer, and a

Art Unit: 1772

second gas barrier coated carrier layer including a second gas barrier layer of SiO_x coated onto a second polymer carrier layer, wherein $x = 2.0$, as described above.

In addition, Löffgren teaches that the thickness of the SiO_x (inorganic) layer is 50 to 500 Å (column 5, line 15) (claim 9), which overlaps the claimed range of 80 to 300 Å (claim 31). Löffgren teaches that the SiO_x layer is deposited by vacuum deposition.

Keiser in view of Löffgren fails to teach that the SiO_x layer is deposited by PECVD technique.

Fayet teaches that PECVD (plasma-enhanced chemical vapor deposition) is a known technique for fabricating silicon oxide coated films, wherein the oxide stoichiometry can be controlled (column 4, lines 1-5), and the films have a higher ductility so that the packaging laminate (column 7, lines 24-26) may be folded and heat-sealed on a conventional packaging machine (column 8, lines 1-5).

Therefore, because Fayet teaches that the SiO_x film has a higher ductility when deposited by PECVD technique, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have deposited the SiO_x films of Keiser in view of Löffgren by PECVD technique, in order to obtain a laminate comprising SiO_x layers which may be folded and heat-sealed on a conventional packaging machine, as taught by Fayet.

14. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Keiser in view of Löffgren as applied to claims 1-8, 10-17, 19, 29-30, 32-36 above, and further in view of Sakai et al. (US 5,591,522).

Keiser in view of Löfgren teaches a gas barrier packaging laminate comprising outside layers of heat-sealable olefin polymer, a first gas barrier coated carrier layer including a first gas barrier layer of SiOx coated onto a first polymer carrier layer, and a second gas barrier coated carrier layer including a second gas barrier layer of SiOx coated onto a second polymer carrier layer, the SiOx gas barrier layers of the first and second gas barrier coated carrier layers are positioned in the laminate such that they are facing each other, and an intermediate polymer layer having a higher stiffness and a higher thickness relative to each of the first and second gas barrier coated carrier layers, laminated to the layers of SiOx by means of a binder layer.

Keiser in view of Löfgren fails to teach that the binder layer comprises a graft copolymer of alkoxysilane and polyethylene.

Sakai teaches a graft copolymer of alkoxysilane (column 2, line 51) and polyethylene as a polyolefin binder (adhesive) layer (column 2, lines 38-42), wherein the alkoxysilane grafted polyolefin provides a firm anchor with superior heat resistance and water resistance (column 5, lines 24-32).

Therefore, because Sakai teaches that the alkoxysilane grafted polyolefin binder provides a firm anchor with superior heat resistance and water resistance, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have used the alkoxysilane grafted polyolefin binder of Sakai as the binder of Keiser in view of Löfgren, in order to maintain the desired interlaminar adhesion during manufacturing of the final product.

Art Unit: 1772

Any inquiry concerning this communication should be directed to Sow-Fun Hon whose telephone number (571)272-1492. The examiner can normally be reached Monday to Friday from 10:00 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Pyon, can be reached on (571)272-1498. The fax phone number for the organization where this application or proceeding is assigned is (703)872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

S. Hon

Sow-Fun Hon

6/24/05

Harold Pyon
HAROLD PYON

SUPERVISORY PATENT EXAMINER

1772

6/27/05